

## Appendix A. Acronyms, Abbreviations, Definitions, and Units of Measure

<b>AAC</b>	Arizona Administrative Code
<b>ADEQ</b>	Arizona Department of Environmental Quality
<b>AGFD</b>	Arizona Game and Fish Department
<b>Agricultural Irrigation (Agl)</b>	Surface water is used for the irrigation of crops.
<b>Agricultural Livestock Watering (AgL)</b>	Surface water is used as a supply of water for consumption by livestock.
<b>Active Management Area (AMA)</b>	A ground water <u>quantity</u> management area, established under the Groundwater Management Code, established where ground water overdraft is most severe. There are five AMA's: Phoenix, Pinal, Prescott, Santa Cruz, and Tucson.
<b>Aquatic and Wildlife Coldwater Fishery (A&amp;Wc)</b>	Surface water is used by animals, plants, or other organisms, including salmonids, for habitation, growth, or propagation.
<b>Aquatic and Wildlife Effluent Dependent Water (A&amp;Wedw)</b>	Effluent dependent water is used by animals, plants, or other organisms for habitation, growth, or propagation.
<b>Aquatic and Wildlife Ephemeral (A&amp;We)</b>	Ephemeral water is used by animals, plants, or other organisms, excluding fish, for habitation, growth, or propagation.
<b>Aquatic and Wildlife Warmwater Fishery (A&amp;Ww)</b>	Surface water is used by animals, plants, or other organisms, excluding salmonids, for habitation, growth, or propagation.
<b>Aquatic Biotic Tissue</b>	Fish tissue or other aquatic organism tissue; criteria are from US Fish and Wildlife Service published action levels.
<b>BEHI</b>	Bank erosion hazard index.
<b>Biological Communities</b>	Groups of fish, macroinvertebrates, algae, or riparian vegetation occupying a habitat or area.
<b>BLM</b>	United States Bureau of Land Management
<b>BoR</b>	United States Bureau of Reclamation
<b>CAP</b>	The Central Arizona Project is a canal system that brings Colorado River water across Arizona, terminating in Tucson.
<b>CERCLA</b>	Comprehensive Environmental Response Compensation and Liability Act. EPA's Superfund Program.
<b>Core Parametric Coverage</b>	Although all parameters with numeric standards are used for assessments, there needs to be at least three sampling events with these specified parameters to assess a designated use as "attaining." This specified parametric coverage does <u>not</u> need to be available to assess a designated use as "impaired."
<b>Credible Data</b>	Surface water monitoring data that is collected meeting requirements established in the Impaired Waters Rule (R18-11-602). These requirements include collecting and analyzing data using a Quality Assurance Plan, Sampling and Analysis Plan, approved methods, approved laboratory, and adequately trained personnel.

<b>Designated Uses</b>	<p>Designated uses are specified for stream segments and lakes in the surface water rules (Arizona Administrative Code R18-11-104). Waterbodies not listed in the rules obtain their designated uses through the "Tributary Rule". Arizona's surface water designated uses include:</p> <p><b>Aquatic and Wildlife</b></p> <ul style="list-style-type: none"> <li><b>Coldwater Fishery</b> (A&amp;Wc)</li> <li><b>Warmwater Fishery</b> (A&amp;Ww)</li> <li><b>Ephemeral Stream</b> (A&amp;We)</li> <li><b>Effluent Dependent Water</b> (A&amp;Wedw),</li> </ul> <p><b>Domestic Water Source</b> (DWS),</p> <p><b>Fish Consumption</b> (FC),</p> <p><b>Full Body Contact</b> (FBC) (i.e., swimming),</p> <p><b>Partial Body Contact</b> (PBC) (i.e., non-swimming recreation),</p> <p><b>Agricultural Irrigation</b> (Agl), and</p> <p><b>Agricultural Livestock Watering</b> (AgL).</p>
<b>Designated Use Support</b>	<p><b>Attaining</b> – Surface water quality standards are being met based on a minimum of 3 monitoring events that provide seasonal representation and core parametric coverage.</p> <p><b>Threatened</b> – Surface water quality standards are currently being met, but a trend analysis indicates that the surface water is likely to be impaired before the next assessment.</p> <p><b>Impaired</b> – Surface water quality standards are not being met based on sufficient number of samples to meet the test of impairment identified in the Impaired Waters Identification Rule (<b>Appendix B</b>).</p> <p><b>Not attaining</b> – Surface water is not attaining its uses, but a TMDL does not need to be completed because: 1) A TMDL has been approved and being implemented, 2) Another action is occurring that so that the surface water is expected to attain its uses before the next assessment, or 3) The impairment is due to pollution where a pollutant loading cannot be calculated (e.g., hydromodification).</p> <p><b>Inconclusive</b> – Monitoring or other assessment information available is insufficient to assess the surface water as "attaining," "threatened," "impaired," or "not attaining."</p> <p><b>Not assessed</b> – Only one water sample or no samples. No information indicating that a narrative standard may be violated.</p>
<b>Domestic Water Source (DWS)</b>	Surface water is used as a potable water supply. Coagulation, sedimentation, filtration, disinfection or other treatments may be necessary to yield a finished water suitable for human consumption.
<b>Effluent Dependent Water</b>	A surface water that consists primarily of discharges of treated wastewater which has been classified as an effluent dependent water under Arizona Administrative Code R18-11-113.
<b>EMAP</b>	US Environmental Protection Agency's Environmental Monitoring and Assessment Project.
<b>EPA or USEPA</b>	The U.S. Environmental Protection Agency
<b>Ephemeral Flow</b>	Surface water that has a channel that is at all times above the water table, that flows only in direct response to precipitation, and that does not support a self-sustaining fish population (Arizona Administrative Code R18-11-101). (See also "intermittent flow" and "perennial flow.")
<b>Exceed/Exceedance</b>	Monitoring data results were greater than a maximum standard or below a minimum standard.

<b>Fish Consumption (FC)</b>	Surface water is used by humans for harvesting aquatic organisms for consumption. Harvestable aquatic organisms include, but are not limited to, fish, clams, crayfish, and frogs.
<b>Full Body Contact (FBC)</b>	Surface water use causes the human body to come into direct contact with the water to the point of complete submergence (e.g., swimming). The use is such that ingestion of the water is likely to occur and certain sensitive body organs (e.g., eyes, ears, or nose) may be exposed to direct contact with the water.
<b>IBWC</b>	International Boundary and Water Commission, an international commission established to resolve water quality issues along the United States border with Mexico.
<b>Intermittent Flow</b>	Surface water flows only at certain times of the year when receiving water from springs or from some surface source such as melting snow in mountainous areas (i.e., seasonal). (See also “ephemeral flow” and “perennial flow.”)
<b>Macroinvertebrates</b>	Stream bottom dwelling insects and other organisms that inhabit freshwater habitats for at least part of their life cycle and are retained by a mesh screen size greater than 0.2 millimeters.
<b>MCL</b>	Maximum Contaminant Level. Standards for public drinking water systems. (See also SMCL.)
<b>Narrative Water Quality Standards</b>	(R18-11-108) Surface waters will be free from pollutants in amounts or combinations that: <ul style="list-style-type: none"> <li>- Settle to form bottom deposits that impair aquatic life or recreational uses;</li> <li>- Cause an objectionable odor;</li> <li>- Cause an off-taste or odor in drinking water;</li> <li>- Cause an off-flavor in aquatic organisms or waterfowl;</li> <li>- Are “toxic” to humans, animals, plants, or other organisms;</li> <li>- Cause the growth of algae or aquatic plants that impair aquatic life or recreational uses;</li> <li>- Cause or contribute to a violation of an aquifer water quality standard (R18-11-405 through 406; or</li> <li>- Change the color of the surface water from natural background levels.</li> </ul>
<b>Naturally Occurring Condition</b>	The condition of a surface water or segment that would have occurred in the absence of pollutant loadings as a result of human activity.
<b>NAWQA</b>	The US Geological Survey’s National Water Quality Assessment Program.
<b>Nonpoint Source</b>	These sources of pollutants come from nondiscrete discharges such as atmospheric deposition, contaminated sediment, and land uses that generate polluted runoff like agriculture, urban land development, forestry, construction, and on-site sewage disposal systems. Nonpoint source pollution also encompasses activities that either change the natural flow regime of a stream or wetland or result in habitat disturbance.
<b>NPDES / AZPDES</b>	National Pollutant Discharge Elimination System is a federal point source discharge permit. ADEQ is to obtain primacy for this program, which will use the acronym AZPDES in describing this permit.
<b>Partial Body Contact (PBC)</b>	Surface water is used so that the human body to come into direct contact with the water, but normally not at the point of complete submergence (i.e., non-swimming recreation). The use is such that ingestion of the water is not likely to occur, nor will sensitive body organs (e.g., eyes, ears, or nose) normally be exposed to direct contact with the water.
<b>Perennial Flow</b>	Surface water that flows continuously. (See also “ephemeral flow” and “intermittent flow.”)

<b>Point Source</b>	These sources of pollution are discrete, identifiable sources such as pipes or ditches that are primarily associated with industries and municipal sewage treatment plants. (See nonpoint source.)
<b>Public Water Supply</b>	A water system which conveys water for human consumption to 15 or more service connections or serves an average of at least 25 persons per day (as defined by the federal Safe Drinking Water Act).
<b>QAP</b>	Quality Assurance Plan. This is a written plan detailing how environmental data will be collected, analyzed, assessed for quality, and establishes the data quality objectives that the data must meet.
<b>RCRA</b>	Resource Conservation and Recovery Act established by the federal government to control hazardous wastes.
<b>Reach</b>	A segment of a stream. EPA originally divided Arizona's streams on the USGS hydrology at 1:100,000 scale map into reaches based on hydrological features such as tributaries. ADEQ has further subdivided these reaches based on changes in designated use support and water quality.
<b>Sampling Event</b>	A "sampling event" is one or more samples taken under consistent conditions on one or more consecutive days at a specific location.
<b>SAP</b>	Sampling and Analysis Plan. This is a written site-specific plan to ensure that samples collected and analyzed meet data quality objectives and are representative of surface water conditions at the time of sampling.
<b>SMCL</b>	Secondary Maximum Contaminant Level. A guidance level established by EPA for substances that create only taste or odor problems in drinking water.
<b>SRP</b>	Salt River Project
<b>Surface Water</b>	<p>These are "waters of the United States", which include:</p> <ul style="list-style-type: none"> <li>- All waters which are, have been, or could be used for interstate or foreign commerce;</li> <li>- All interstate waters or wetlands;</li> <li>- All lakes, reservoirs, natural ponds, rivers, streams (including intermittent and ephemeral streams), creeks, washes, draws, mudflats, sandflats, wetlands, backwaters, playas (etc.) which could be used by visitors to our state for recreation, from which fish or shellfish could be taken or sold, or which is used for industrial purposes; or</li> <li>- All impoundments, wetlands, or tributaries of above waters.</li> </ul> <p>(Summarized from Arizona Administrative Code R18-11-101)</p>
<b>SVOC</b>	Semi-volatile organic chemical or compound (see also VOC)
<b>Toxic Chemicals</b>	Pollutants or combinations of pollutants which, after discharge and exposure (contact, ingestion, inhalation, or assimilation) to any organism (either directly from the environment or indirectly through the food chain), may cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction), or physical deformations in such organisms or offspring.
<b>TMDL</b>	Total Maximum Daily Load. A TMDL is a written, quantitative plan and analysis to determine the maximum loading on a pollutant basis that a surface water can assimilate and still attain and maintain a specific water quality standard during all conditions. The TMDL allocates the loading capacity of the surface water to point sources and nonpoint sources identified in the watershed, accounting for natural background levels and seasonal variation, with an allocation set aside as a margin of safety.

<b>Tributary Rule</b>	<p>This rule (Arizona Administrative Code R18-11-105, amended in 1996) is used to determine “Designated Uses” for waterbodies not specifically listed in the surface water protection rules.</p> <ul style="list-style-type: none"> <li>- If the surface water is “Ephemeral,” then the Aquatic and Wildlife Ephemeral and Partial Body Contact standards apply.</li> <li>- If the surface water is “Effluent Dependent Water,” then the Aquatic and Wildlife Effluent Dependent Water and Partial Body Contact standards apply.</li> <li>- If the surface water has salmonids present and is not A&amp;Wedw (above), then the designated uses are: Aquatic and Wildlife Coldwater Fishery, Fish Consumption, and other designated uses for the nearest downstream surface water listed in the rules that is not an ephemeral water or an effluent dependent water.</li> <li>- If the surface water does not have salmonids present and is not A&amp;We or A&amp;Wedw (above), then the designated uses are: Aquatic and Wildlife Warmwater Fishery, Fish Consumption, and other designated uses for the nearest downstream surface water listed in the rules that is not an ephemeral water or an effluent dependent water.</li> </ul>
<b>Trophic Status</b>	<p>Lakes can be classified by the level of nutrients available for primary biological production. Lakes generally progress through the following trophic phases or states:</p> <p><b>Oligotrophic</b> -- Low algal or plant productivity;</p> <p><b>Mesotrophic</b> -- Medium algal or plant productivity;</p> <p><b>Eutrophic</b> -- High algal or plant productivity; and productivity;</p> <p><b>Hypereutrophic</b> -- Very high algal or plant productivity and light limited. That is, instead of growth being limited by nutrient availability (as it is in other trophic conditions), growth becomes limited by light.</p>
<b>Unique Water</b>	A surface water classified as an outstanding state resource water under Arizona Administrative Code R18-11-112.
<b>USFWS</b>	United States Fish and Wildlife Service
<b>USFS</b>	United States Forest Service
<b>USGS</b>	United States Geological Survey
<b>UST</b>	Underground Storage Tanks Program for eliminating the release of toxic chemicals from storage tanks.
<b>VOC</b>	Volatile organic chemical or compound (e.g., solvents)
<b>Waters of the United States</b>	(See “surface water” definition.)
<b>WTP</b>	Water Treatment Plant for drinking water treatment.
<b>WWTP</b>	Wastewater Treatment Plant
<b>WQARF</b>	Water Quality Assurance Revolving Fund. Arizona’s Superfund program for cleanup of contaminated sites.

## CHEMICAL ABBREVIATIONS

BTEX	combination of petroleum hydrocarbons including: benzene, toluene, ethylbenzene, xylene
DCA	dichloroethane
DCB	dichlorobenzene
DCE	dichloroethene
MTBE	methyl tertiary butyl ether
PCE	tetrachloroethane
TCE	trichloroethene

## UNITS OF MEASUREMENT AND CONVERSIONS

MEASUREMENT USE	UNIT	EQUIVALENT UNITS OR CONVERSION
Bacteria concentration in water	colony forming units (CFS) per 100 milliliter	
Chemical concentrations in water	milligram per liter (mg/L) microgram per liter (µg/L)	1 mg/L = 0.001 grams per liter 1 mg/L = parts per million (ppm) 1 µg/L = 0.001 milligram per liter (mg/l) 1 µg/L = 0.000001 grams per liter 1 µg/L = 1 parts per billion (ppb)
Chemical concentrations in animal tissue and sediment	milligram per kilogram (mg/kg) microgram per kilogram (µg/kg)	1 mg/kg = 1 parts per million (ppm) 1 mg/kg = 1 microgram per gram (µg/g) 1 µg/kg = 1 parts per billion (ppb)
Ground water quantity	acre-feet	1 acre-foot = 325,900 gallons
pH in water	standard unit (SU)	
Radiochemical concentrations in water	picocuries per liter (pCi/L)	
Rate of flow	cubic feet per second (cfs)	1 cfs = 448.83 gallons per minute (gpm) 1 cfs = 646,000 gallons per day (gpd)
Lake area	acres	
Stream length	miles	1 mile = 1.6 kilometers (km)
Watershed size	square miles	1 square mile = 640 acres per square mile

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Water turbidity (ability to light to travel through the water)	Nephelometric Turbidity Unit (NTU)	